



May 14, 2015

L-2015-149  
10 CFR 50.90

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555-0001

Re: St. Lucie Units 1 and 2  
Dockets Nos. 50-335 and 50-389  
Response to Request for Additional Information (RAI) Regarding License  
Amendment Request to Permanently Extend the Integrated Leak Rate Test (ILRT)  
Frequency to 15 Years (MF4694 and MF4695)

References:

1. FPL letter L-2014-230 dated August 26, 2014: St. Lucie Plant - Application for Technical Specifications Change to Permanently Extend the Integrated Leak Rate Test (ILRT) Frequency to 15 Years [ML14241A496]
2. FPL letter L-2015-015 dated January 14, 2015: St. Lucie Plant, Units 1 and 2 - Response to Request for Additional Information (RAI) Regarding License Amendment Request to Permanently Extend the Integrated Leak Rate Test (ILRT) Frequency to 15 Years [ML15029A496]
3. FPL letter L-2015-016 dated February 6, 2015: St. Lucie Plant, Units 1 and 2 - Response to Request for Additional Information (RAI) Regarding License Amendment Request to Permanently Extend the Integrated Leak Rate Test (ILRT) Frequency to 15 Years
4. NRC letter dated April 29, 2015: RAIs Regarding License Amendment Request to Extend the Containment Type A Leak Rate Test Frequency to 15 Years – St. Lucie Nuclear Plant (TAC NOs. MF4694 and MF4695) [ML15114A323]

Per Reference 1 above, Florida Power & Light Company (FPL) requested an amendment to the Renewed Facility Operating Licenses for St. Lucie Unit 1 and Unit 2. The license amendment request (LAR) would modify the St. Lucie Units 1 and 2 Technical Specifications to permanently extend the frequency of the containment integrated leak rate test (ILRT) from once per 10 years to once per 15 years. This application was supplemented by letters dated January 14, 2015 (Reference 2) and February 6, 2015 (Reference 3).

By letter dated April 29, 2015 (Reference 4), NRC staff requested additional information regarding the LAR. The enclosure to this letter provides a detailed response to a request for additional information (RAI) from the Containment and Ventilation Branch (SCVB).

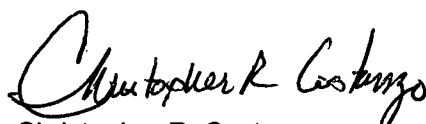
The information provided in this submittal does not impact the 10 CFR 50.92 evaluation of "No Significant Hazards Consideration" previously provided in FPL letter L-2014-230. This submittal makes no new commitments or changes to existing commitments.

Should you have any questions regarding this submittal, please contact Mr. Eric Katzman, Licensing Manager, at (772) 467-7734.

A017  
NRR

I declare under penalty of perjury that the foregoing is true and correct. Executed on  
May 14<sup>th</sup>, 2015.

Respectfully submitted,



Christopher R. Costanzo  
Site Vice President  
St. Lucie Plant

Enclosure: St. Lucie Units 1 and 2 ILRT LAR RAI Response

cc: USNRC Regional Administrator, Region II  
USNRC Senior Resident Inspector, St. Lucie Units 1 and 2  
USNRC Project Manager, St. Lucie Units 1 and 2  
Ms. Cindy Becker, Florida Department of Health

L-2015-149

**Enclosure**  
**St. Lucie Units 1 and 2 ILRT LAR RAI Response**

Response to Request for Additional Information (RAI) Regarding License Amendment Request  
to Permanently Extend the Integrated Leak Rate Test (ILRT) Frequency to 15 Years  
(MF4694 and MF4695)

SCVB RAI 1  
SCVB RAI 2

### SCVB RAI 1

This Request for Additional Information (RAI) was satisfactorily responded to by Florida Power & Light Company (FPL) with Reference 4 (ADAMS Accession No. ML15029A496). Implicit with the licensee response, FPL is no longer seeking extensions to the allowed frequencies of the 10 CFR 50 Appendix J Type B and Type C tests as originally requested in the LAR.

### RESPONSE

No response is required based on the NRC's statement above.

### SCVB RAI 2

License Amendment Request (LAR) Section 3.1 "Previous Type A Test 3.1 Integrated Leak Rate Test (ILRT) Results" (pages 9 and 10, Enclosure, Reference 1) provides some details of the test results that satisfied the Technical Specification 6.8.4.h requirements from the two most recent ILRTs for both St. Lucie Plants, Unit Nos. 1 and 2 \*(SL-1 and 2). For SL-1, the most recent successful ILRT was completed in December 2005. For SL-2, the most recent successful ILRT was completed in December 2007.

Florida Power and Light Company (FPL) concluded, in the last sentence of page 9, that "Any unplanned modifications to the containment prior to the next scheduled Type A test would be subject to the special testing requirements (Section IV.A of 10 CFR 50 [Title 10 of the *Code of Federal Regulations* Part 50], Appendix J, 'Containment Modification,'" which reads:

Containment modification. Any major modification, replacement of a component which is part of the primary reactor containment boundary, or resealing a seal-welded door, performed after the preoperational leakage rate test shall be followed by either a Type A, Type B, or Type C test, as applicable for the area affected by the modification. The measured leakage from this test shall be included in the summary report required by V.B. The acceptance criteria of III.A.5.(b), III.B.3., or III.C.3., as appropriate, shall be met. Minor modifications, replacements, or resealing of seal-welded doors, performed directly prior to the conduct of a scheduled Type A test do not require a separate test.

As indicated in LAR Section 3.2, "Type B and Type C Testing (LLRT) [Local Leak-Rate Test Program]" (page 10, Enclosure, Reference 1):

To permit operation at Extended Power Uprate (EPU) conditions, the NRC [U.S. Nuclear Regulatory Commission] issued Amendment 213 [Agencywide Documents Access and Management System (ADAMS) Accession No.] ML12156A208), which raised the Unit 1  $P_a$  [accident pressure] value from 39.6 psig [pounds per square inch gauge] to 42.8 psig, and Amendment 163 (ML12235A463), which raised the Unit 2  $P_a$  value from 41.8 psig to 43.5 psig.

Amendment 213 for SL-1 was issued on July 9, 2012, and Amendment 163 for SL-2 was issued on September 24, 2012. The NRC staff notes that FPL indicated that all SL-1 and 2 components within the scope of the LLRT program are being tested at these revised  $P_a$  values with the words:

Currently all components within the scope of the LLRT program are being tested at a test frequency of each refueling outage. This was commenced prior to approval of EPU operation for both units to ensure compliance with the requirements for performing LLRT at or above  $P_a$  pressure and to conservatively establish a new

performance history even though the new  $P_a$  values are not significantly higher. Currently, St. Lucie has not begun the reevaluation process for extended test intervals."

Given the above regulatory requirement and the above sequence of events:

- a. The NRC staff notes that the last sentence of Section 9.2.3, "Extended Test Intervals," of Nuclear Energy Institute (NEI) 94-01 Revision 2-A (Reference 2) reads, "In the event where previous Type A tests were performed at reduced pressure (as described in 10 CFR 50, Appendix J, Option A), at least one of the two consecutive periodic Type A tests shall be performed at peak accident pressure ( $P_a$ )."

Based on this statement for both SL-1 and 2, confirm that at least one of the actual ILRT test pressures employed during the two most recent Type A tests (per the guidance of American National Standards Institute/American Nuclear Society (ANSI/ANS) 56.8-1994 (Reference 3) bound the revised  $P_a$  values of SL-1 Amendment 213 and SL-2 Amendment 163, respectively.

- b. As noted in LAR Section 3.2, SL1- and 2 implemented conducting Appendix J, Type B and Type C tests at the revised  $P_a$  values and at a frequency of each refueling outage, prior to NRC approval of EPU operation. The NRC staff requests that FPL provide a summary of the cumulative Type B and Type C test totals from each of the refueling outages since this implementation.

In addition to providing a historical comparison, the staff requests that FPL provide the cumulative Type B and Type C test totals associated with the most recent SL-1 ILRT (completed in December 2005) and the most recent SL-2 ILRT (completed in December 2007). The staff also requests for the "PSL-1 [Plant St. Lucie, Unit No. 1] and PSL-2 LLRT Failures 2005-2014" listed in the tables of LAR Attachment 6, that FPL explain what corrective actions have been taken to correct the problems of components with a history of repetitive failures.

#### References:

1. Letter L-2014-230, dated August 26, 2014, from Joseph Jensen, FPL to NRC regarding License Amendment Request for the St. Lucie Nuclear Plant Regarding Permanently Extending the Integrated Leak Rate Test Frequency to 15 Years (ADAMS Accession No. ML14241A496).
2. Topical Report NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," October 2008 (ADAMS Accession No. ML100620847).
3. ANSI/ANS-56.8-1994, "American National Standard for Containment System Leakage Testing Requirements."

**RESPONSE**

**SCVB RAI 2a - ILRT performed at ANSI/ANS-56.8-1994 requirements for EPU  $P_a$**

The most recent ILRTs on St. Lucie Unit 1 and Unit 2 met the requirements for Type A test (ILRT) pressure in conjunction with the current values for  $P_a$  developed from EPU and bound the revised  $P_a$  values of Unit 1 Amendment 213 and Unit 2 Amendment 163, respectively.

**ANSI/ANS-56.8-1994**

Section 3.2.11 Type A Test Pressure. The Type A test pressure shall not be less than  $0.96 P_a$  nor exceed  $P_a$ . ...The test pressure shall be established relative to the external pressure of the primary containment measured at the start of the Type A test.

**Unit 1 ILRT Pressure Sequence**

12/7/05, 08:25	42.79 psig	Secured air compressors
12/8/05, 00:41	41.43 psig	Start Type A test
12/8/05, 08:48	41.29 psig	End Type A test
12/8/05, 13:35	41.18 psig	End verification test

$P_a = 42.8$  psig       $0.96P_a = 41.09$  psig  
(from Unit 1 Technical Specification Amendment 213)

Note: The EPU calculated value was conservatively rounded upwards to 42.8 for program test implementation purposes.

**Unit 2 ILRT Pressure Sequence**

12/9/07, 23:30	43.11 psig	Secured air compressors
12/10/07, 13:05	42.09 psig	Start Type A test
12/10/07, 21:05	41.94 psig	End Type A test
12/11/07, 01:15	41.85 psig	End verification test

$P_a = 43.48$  psig       $0.96P_a = 41.74$  psig  
(from Unit 2 Technical Specification Amendment 163)

Note: The EPU calculated value was conservatively rounded upwards to 43.5 for program test implementation purposes.

**SCVB RAI 2b, Part 1 - Cumulative Type B & C Test (LLRT) Totals**

**Unit 1**

Outage	Shutdown Date	P <sub>a</sub> (psig)	As-Found Bypass (sccm)	As-Found Total (sccm)	As-Left Bypass (sccm)	As-Left Total (sccm)	Notes
SL1-25	9/2013	42.8	14,567	198,065	22,126	55,144	
SL1-24	11/2011	42.8	20,088	27,599	22,951	56,825	
SL1-23	4/2010	42.8	17,573	47,803	34,344	50,294	
SL1-22	10/2008	39.6	16,688	89,879	31,698	62,718	
SL1-21	4/2007	39.6	26,678	39,546	43,054	60,629	
SL1-20	10/2005	39.6	15,450	28,570	51,584	103,593	ILRT Performed

Total (Type B & C) Limit = 544,933 sccm

Bypass Limit = 87,189 sccm

**Unit 2**

Outage	Shutdown Date	P <sub>a</sub> (psig)	As-Found Bypass (sccm)	As-Found Total (sccm)	As-Left Bypass (sccm)	As-Left Total (sccm)	Notes
SL2-21	3/2014	43.5	29,921	65,838	35,403	112,690	
SL2-20	8/2012	43.5	32,608	72,035	39,710	87,729	
SL2-19	1/2011	41.8	17,768	49,094	29,053	104,099	
SL2-18	4/2009	41.8	17,832	58,714	29,927	85,259	
SL2-17	9/2007	41.8	53,624	83,860	20,883	73,634	ILRT Performed
SL2-16	4/2006	41.8	39,833	69,685	48,542	88,855	

Total (Type B & C) Limit = 585,233 sccm

Bypass Limit = 93,637 sccm

**SCVB RAI 2b, Part 2 - Actions Taken on Valves Exhibiting Repetitive Failures (Unit 1)**

Unit 1

[AR – action request]

Component	Date	Description
V5204	10/30/05	[AR 00424762] Bottom two belleville washers pinched between piston and upper piston shaft. Repaired under WO 34015405 and performed initial as-left test.
V5204	11/24/05	[AR 00480526] Post-maintenance test (As-Left). Reset stroke length and determined coupling on piston rod was not torqued sufficiently. Repaired under WO 35029155 and retested. Final as-left test was 18 sccm.
V5204	11/13/08	[AR 00455527] Post-maintenance test (As-Left). Swage tube fitting leaking following valve maintenance. Repaired under WO 38025739 and final as-left LLRT was 180 sccm.
FCV-26-3	4/10/10	[AR 00474657] Replaced seat ring and adjusted to reduce friction points at stem coupler/anti-rotation rib and valve stem/packing flange under WO 40006671. As-left test was 127.6 sccm.
FCV-26-3	12/3/11	[AR 01712224] Removed threaded seat ring and re-installed with PRI-102N thread sealant under WO 40127510. As-Left test was 900 sccm. Subsequent LLRTs in the 2013 and 2015 outages had acceptable results. This valve is currently being maintained on the initial test interval as described in NEI-94-01.



**SCVB RAI 2b, Part 2 - Actions Taken on Valves Exhibiting Repetitive Failures (Unit 2)**

Unit 2

[AR – action request]

Component	Date	Description
FCV-25-36	8/15/06	[AR 00481633] Failed administrative limit but met Technical Specification limit during quarterly on-line surveillance testing. After initial troubleshooting under WO 36015415 was scoped to outage.
FCV-25-36	11/24/07	[AR 00484072] Post-maintenance test (As-Left). Failed LLRT after initial diagnostics and maintenance under WO36018338 and 36020891 to correct condition found during on-line test. Valve was then replaced under WO 37025447 and final as-left test was 18 sccm.
FCV-25-36	10/28/12	[AR 01817385] Replaced Tefzel seat and seat o-ring under WO 40085547. The As-left LLRT was 18 sccm. This valve is tested quarterly in accordance with St. Lucie Technical Specifications. Results of the quarterly surveillance LLRTs have been satisfactory since 2012.
SE-03-2B	10/21/07	[AR 00509403] Post-maintenance test (As-Left). Pilot disk not seating following maintenance. Replaced pilot disk and main disk under WO 37023274. As-left LLRT was 1,600 sccm.
SE-03-2A	1/17/11	[AR 01609506] Checked surfaces but no apparent defects noted. Skim cut and polished main disk under WO 40063404. As- Left LLRT was 1,400 sccm.
SE-03-2B	8/16/12	[AR 01794724] Main disk not making full contact in seat. Lapped seat and disk under WO 40063405. As-left LLRT was 1,080 sccm.
SE-03-2A/B	3/10/14	[AR 01947012] Decision was made to work SE-03-2A and SE-03-2B simultaneously due to logistics and time involved for complete overhaul. Since SE-03-2A and SE-03-2B are parallel valves which cannot be isolated from each other the program dictates that both valves will be attributed with a failure.  SE-03-2B Pilot disk had groove and was sticking in seat. Performed inspections and maintenance per upgraded maintenance procedure specific to these valves. Replaced main disk, pilot disk, and other parts as necessary for overhaul under WO 40299600.  SE-03-2A Pilot disk had groove at seating surface. Performed inspections and maintenance per upgraded maintenance procedure specific to these valves. Replaced main disk and pilot disk package and parts as necessary for overhaul under WO 40299599.  The As-left LLRT for SE-03-2A and SE-03-2B was 1,300 sccm. These valves are being maintained on the initial test interval as described in NEI-94-01.